

ABSTRACT OF THE DISCLOSURE

A seed layer as a laminate of a GaN layer (second seed layer) and an AlN buffer layer (first seed layer) is formed on a sapphire substrate. A front surface thereof is etched in the form of stripes with a stripe width (seed width) of about 5 μm , a wing width of about 15 μm and a depth of about 0.5 μm . As a result, mesa portions each shaped like nearly a rectangle in sectional view are formed. Non-etched portions each having the seed multilayer as its flat top portion are arranged at arrangement intervals of $L \approx 20 \mu\text{m}$. Part of the sapphire substrate is exposed in trough portions of wings. The ratio of S/W of the seed width to the wing width is preferably selected to be in a range of from about 1/3 to about 1/5. Then, a semiconductor crystal A is grown to obtain a thickness of not smaller than 50 μm . The semiconductor crystal is separated from the starting substrate to thereby obtain a high-quality single crystal independent of the starting substrate. When a halide vapor phase epitaxy method is used in the condition that the V/III ratio is selected to be in a range of from 30 to 80, both inclusively, a semiconductor crystal free from cracks can be obtained.